CLAIMS

What is claimed is:

1.   An apparatus for forming a twisted pair cable, the apparatus comprising:

a device for rotating at a first predetermined rate of rotation a pair of elongated conductor strands about a twisting location, the device guiding the elongated conductor strands to the twisting location;

a twist stop device mounted adjacent the twisting location and effective to grip running lengths of elongated conductor strands passing through device for rotating and the twisting location; and

a strand puller for engaging the running lengths of elongated conductor strands, the strand puller advancing the strands passing through the device for rotating, and the twist stop device, the strand puller operating at a second predetermined rate of rotation;

the device for rotation and the strand puller operating independently to make twisted pair cable having different twist rates on different segments, the segments having different lengths.

2.   An apparatus in accordance with Claim 1 further comprising:

a rotating frame operatively associated with a stationary frame, the rotating frame revolving about the twisting location, the rotating frame including conductor guides for directing the running lengths of elongated conductor strands along predetermined paths to the twisting location;

a twisting drive operatively connected to the rotating frame and driving the rotating frame in revolutions about the twisting location; and

a puller drive operatively connected to the strand puller and driving the strand puller to advance strands through the conductor guides, the twisting location, the twist stop device, and the strand puller,

the twisting drive and the puller drive are adapted to operate at varying speeds relative to each other to generate twist pairs of strands passing through the apparatus into twisted pairs, the twisted pair cable having adjacent lengthwise segments with segment lengths that differ one from the other, and wherein a number of twists of one segment length differ from another segment length.

3.   An apparatus in accordance with Claim 1 wherein the first predetermined rate is provided by a controller for controlling a rate of rotation of the twisting drive.

4.   An apparatus in accordance with Claim 1 wherein the second predetermined rate is provided by a controller for

controlling a rate of rotation of the strand puller drive.

5. An apparatus in accordance with Claim 1 wherein a controller comprises a computer programmed to control the twisting drive and the puller drive as determined by algorithms stored in the computer to produce the twisted pair cable having a predetermined twist rate over segment lengths, to change the predetermined twist rate and to change the segments lengths wherein adjacent twisted pair cables have different twist rates at adjacent locations.

6. An apparatus in accordance with Claim 1 wherein the twist stop device converts a rotating cable of a twisted pair from the twisting location to a non-rotating cable for take-up on the strand puller.

7. A method of forming a variable twist rate twisted pair cable, the method comprising the steps of:

rotating a frame on which two conductor strand spools are mounted at a first predetermined rate to create a twisting relationship between two conductors being fed from each strand spool and through the frame;

feeding the two conductors through a twist stop device that fixes a relative placement of each conductor as the conductors are twisted together from the rotating carriage and through the twist stop; and

rotating a strand puller at a second predetermined rate to pull the two conductors from the rotating carriage and through the twist stop and to collect the variable twist rate twisted pair cable formed.

8. A method in accordance with Claim 7 wherein the first predetermined rate is independent from the second predetermined rate in order to vary the number of twists per foot over different segment lengths of the cable.

9. A method in accordance with Claim 8 wherein the first and second predetermined rates are provided by a controller.

10. A method in accordance with Claim 9 wherein the controller comprises a programmed computer having algorithms therein which determine the twist rate of the twisted pair cable, the twist rate being variable from one lengthwise segment of the cable to another lengthwise segment of the cable and wherein the length of each lengthwise segment is different.

11. A twisted pair cable comprising a first conductor and a second conductor twisted about one another over a plurality of lengthwise segments, each lengthwise segment length being unequal and a twist rate on each segment being different.

12. A twisted pair cable in accordance with Claim 11 wherein adjacent, side-by-side, twisted pair cables have different twist rates in adjacent segments.

13. A twisted pair cable in accordance with Claim 11 wherein adjacent lengthwise segments of the twisted pair cable further have substantially varying twist rates.